

WHAT IS CLAIMED IS:

1. An apparatus for manufacturing an anisotropic formed body in which functional, magnetic fine particles are oriented in a specific direction within a matrix and in which anisotropy is given to properties attributable to the functional fine particles, comprising a superconducting magnet device that has a cylindrical superconducting coil and generates a uniform and parallel magnetic field in which magnetic lines of force at equal intervals and parallel to each other extend through a mold arranged in a barrel axis of the superconducting coil.

2. An apparatus for manufacturing an anisotropic formed body according to claim 1, wherein the cylindrical superconducting coil is composed of an upper superconducting coil and a lower superconducting coil vertically spaced apart from each other, and a gap between the coils constitutes a transfer opening for the mold.

3. An apparatus for manufacturing an anisotropic formed body according to claim 2, further comprising an injection molding device using an injection mold as the mold.

4. An apparatus for manufacturing an anisotropic formed body according to claim 2, wherein a photo-setting molding device using a photo-setting mold as the mold.

5. An apparatus for manufacturing an anisotropic formed body according to claim 2, wherein a heating device for heating in the mold a liquid molding material with the functional fine particles contained in the matrix.

6. An apparatus for manufacturing an anisotropic formed body according to claim 5, further comprising a drive device for driving at least one of the mold and the heating device in the barrel axis direction of the superconducting coil.

7. An apparatus for manufacturing an anisotropic formed body according to claim 1, further comprising a heating device for heating in the mold a liquid molding material with the functional fine particles contained in the matrix.

8. An apparatus for manufacturing an anisotropic formed body according to claim 1, further comprising an injection molding device using an injection mold as the mold.

9. An apparatus for manufacturing an anisotropic formed body according to claim 1, further comprising a photo-setting molding device using a photo-setting mold as the mold.

10. An apparatus for manufacturing an anisotropic formed body according to claim 1, further comprising a refrigerator for cooling the superconducting coil by a forced-flow cooling or a conduction cooling.

11. A method for manufacturing an anisotropic formed body, comprising the steps of applying, by using a superconducting magnet device, a uniform and parallel magnetic field with magnetic lines of force at equal intervals and parallel to each other, to a mold in which a matrix is filled with a liquid molding material containing functional, magnetic fine particles, to orient the functional fine particles in a direction of the magnetic lines of force, and hardening the liquid molding material.

12. A method for manufacturing an anisotropic formed body according to claim 11, wherein a uniform parallel magnetic field having a diameter of 300 to 1000 mm is applied to the mold by using the superconducting magnet device.

13. A method for manufacturing an anisotropic formed body according to claim 11, wherein a uniform parallel magnetic field having a magnetic flux of 1 to 10 T is applied to the mold by using the superconducting magnet device.

14. A method for manufacturing an anisotropic formed body according to claim 13, wherein a uniform parallel magnetic field having a diameter of 300 to 1000 mm is applied to the mold by using the superconducting magnet device.